CLAIMS

1.. A data scrambler comprising:

a table adapted to store scrambling values of an m-sequence, said table formed into at least two overlapping swaths of N columns, wherein each swath stores said m-sequence and said m-sequence of one swath is shifted from said m-sequence of a second swath; and

a selector adapted to read a current swath N bits at a time for use in scrambling N bits of input data in parallel and to shift to the next swath.

2. A data scrambler according to claim 1 wherein a row R stores values of said m-sequence beginning with the (R-1)N+1th value of said m-sequence.

3. A data scrambler according to claim 2 wherein N is eight and said m-sequence is 127 bits long.

4. A data scrambler according to claim 3 wherein said table has at least 16 rows and at least 15 columns.

5. A data scrambler according to claim 4 wherein said selector comprises:

a first counter adapted to count a first value modulo 16 and to generate an address from said value for said table;

a second counter adapted to count second value modulo 7 whenever said first value reaches 16; and

a multiplexer adapted to select eight bits of a row of said table indicated by said address starting at the column having said second value.

6. A data scrambler according to claim 1 wherein the length S of m-sequence is 2^B-1, the number NR of rows of said table is round(S/N)+ 1, the number NE of extra bits is N - (S - (NR-1)*N)) and the number NC of columns of said table is (NE+1)N-1.

7. A data scrambler comprising:

a table having rows and columns adapted to store scrambling values of an m-sequence, wherein a row R has more than N storage elements and stores values of said m-sequence beginning with the (R-1)N+1th value of said m-sequence; and

a selector adapted to select N consecutive bits of said m-sequence at a time from said table for use in scrambling N bits of input data.

8. A data scrambler according to claim 7 wherein N is eight and said m-sequence is 127 bits long.

9. A data scrambler according to claim 8 wherein said table has at least 16 rows and at least 15 columns.

10. A data scrambler according to claim 9 wherein said selector comprises:

a first counter adapted to count a first value modulo 16 and to generate an address from said first value for said table;

a second counter adapted to count second value modulo 7 whenever said first value reaches 16; and

a multiplexer adapted to select eight bits of a row of said table indicated by said address starting at the column having said second value.

11. A data scrambler according to claim 7 wherein the length S of m-sequence is 2^B-1, the number NR of rows of said table is round(S/N)+ 1, the number NE of extra bits is N - (S - (NR-1)*N)) and the number NC of columns of said table is (NE+1)N-1.

12. A data scrambler comprising:

a selector adapted to receive M consecutive bits of an m-sequence from a memory system and to select N consecutive bits of said M received bits for use in scrambling N bits of input data.

13. A data scrambler according to claim 12 wherein N is eight, M is 15 and said m-sequence is 127 bits long.

14. A communication unit comprising:

a data scrambler comprising:

a selector adapted to receive M consecutive bits of an m-sequence from a memory system and to select N consecutive bits of said M received bits for use in scrambling N bits of input data; and

an error correction module.

15. A communication unit according to claim 14 wherein N is eight, M is 15 and said m-sequence is 127 bits long.

16. A method comprising:

storing scrambling values of an m-sequence in a table, said table formed into at least two overlapping swaths of N columns, wherein each swath stores said m-sequence and said m-sequence of one swath is shifted from said m-sequence of a second swath;

reading a current swath N bits at a time;

scrambling N bits of input data in parallel using said N bits of said current swath; and

when said swath is finished, shifting to another swath NE bits from the current swath.

17. A method according to claim 16 wherein the length S of m-sequence is 2^R-1, the number NR of rows of said table is round(S/N)+ 1, the number NE of extra bits is N - (S - (NR-1)*N)) and the number NC of columns of said table is (NE+1)N-1.

18. A method according to claim 17 and wherein said reading comprises:

counting a first value modulo NR;

generating an address from said first value for said table;

counting a second value modulo N-1 whenever said first value reaches NR; and

selecting N bits of a row of said table indicated by said address starting at the column having said second value.